



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,123	08/08/2000	Alok Aggarwal	JP920000226US1	4050

7590 12/02/2003

McGinn & Gibb, PLLC
2568-A Riva Road
Suite 304
Annapolis, MD 21401

EXAMINER

MOORE JR, MICHAEL J

ART UNIT	PAPER NUMBER
----------	--------------

2666

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/634,123

Applicant(s)

AGGARWAL ET AL.

Examiner

Michael J Moore, Jr.

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,5,7,8,10-12,14,15,17,19,21-23,25 is/are rejected.
- 7) ☒ Claim(s) 2,4-6,9,11-13,16,18,19,20,22-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 1, line 26, the word "that" is needed between "devices" and "automatically". On page 2, line 33, the word "has" should be "have". On page 2, line 35, the word "system" is typed twice. On page 3, line 14, the word "devics" should be "devices". On page 4, line 35, the word "procecss" should be "process". On page 9, line 35, "number_of_responces" should be "number_of_responses". On page 9, line 30, "SUPER_TO" should be "SUPERM_TO". On page 10, line 14, "numebr_of_masters" should be "number_of_masters". On page 10, line 34, "Slave-destinate" should be "Slave-designate". On page 12, line 30, "SUPER_TO" should be "SUPERM_TO". On page 13, line 6, "algorithmfurther" should be two words. On page 13, line 13, "Super-master-deisgnate" should be "Super-master-designate". Appropriate correction is required.
2. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01. On page 5, line 26, the hyperlink <http://www.bluetooth.net> should not be included in the specification.
3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claims **16, 17, and 18** all contain subject matter that is not supported in the specification or the drawings. All claims should be supported in the

specification and/or the drawings. As a result of this lack of support, a reasonable search for claims **16, 17, and 18** against the available prior art could not be performed. Appropriate correction is required.

Claim Objections

4. Claims **2, 9, 13, 19, and 20** are objected to because of the following informalities: In claim **2**, line 2, "at one" should be "at least one". In claim **9**, line 2, "at one" should be "at least one". In claim **13**, "includes method" is not needed. In claim **19**, line 4, "inclusding" should be "including". In claim **20**, line 1, "wherein" is typed twice. In claim **20**, line 2, "at one" should be "at least one". Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims **1, 4, 5, 8, 11, 12, 15, 17, 19, 22, and 23** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim **1** recites the limitations "said separation of the nodes" in lines 6 and 7, "said transmit state and said receive state" in line 7, "said inquiry message" in lines 11 and 13, and "said inquiry response" in lines 12 and 13. There is insufficient antecedent basis for these limitations in the claim.

Claim **4** recites the limitation "said inquiry scan" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "said inquiry response" in lines 4 and 5.

There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitations "said separation of the nodes" in line 7, "said transmit state and said receive state" in line 7, "said inquiry message" in lines 11 and 13, and "said inquiry response" in lines 12 and 13. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "said inquiry scan" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "said inquiry response" in lines 4 and 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "said node discovery" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 17 recites the limitation "said inquiry message" in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitations "said separation of the nodes" in line 9, "said transmit state and said receive state" in lines 9 and 10, "said inquiry message" in lines 15, 16, and 17, and "said inquiry response" in line 16. There is insufficient antecedent basis for these limitations in the claim.

Claim 22 recites the limitation "said inquiry scan" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 23 recites the limitation "said inquiry response" in lines 4 and 5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 3, 7, 8, 10, 14, 15, 19, 21, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callaway, Jr. et al. (U.S. 6,275,500) in view of Ray et al. (U.S. 6,587,455).

Regarding claims 1 and 3, the claimed limitation is a method for organizing a set of nodes into a minimum number of clusters in a wireless network. This method comprises the using of packet bits during device discovery in order to separate the nodes into transmit-state and receive-state. This method also involves the defining of master and slave nodes and the defining of clusters containing these nodes. Inquiry messages and responses are exchanged

between the master and slave nodes so that a connection can be established between these nodes.

The defining of master and slave nodes and the defining of clusters containing these nodes is anticipated by the piconet 15 in Figure 1 of the Callaway, Jr. et al. reference. This piconet has a master device 2 connected to several slave devices 1, 3, 4, 5, 6, 8, and 9, which constitutes a cluster. The exchanging of inquiry messages and inquiry responses between master and slave nodes for connection purposes is anticipated by Figures 3 and 5 of the Callaway, Jr. et al. reference. Figure 3 shows a master 2 that is sending an inquiry message to slaves 1 and 12. Figure 5 shows slaves 1 and 12 sending inquiry responses to master 2. Callaway, Jr. et al. does not disclose the transmitting of packet bits during device discovery in order to separate the nodes into transmit-state and receive-state and convey node state. However, Ray et al. discloses an 8-bit opcode used within a message for either a request state or a reply state in Figure 4. This message format of Figure 4 is used for the automatic discovery of nodes associated with a subnet.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to use packet bits to set node state in the claimed method. A motivation for doing so would be to allow each node to be aware of other nodes that are associated with the same subnet as stated in column 1, lines 55-59 of the Ray et al. reference.

Regarding claim 7, the claimed limitation is the method of claim 1 where the said wireless transmission system is a Bluetooth system. Callaway, Jr. et al. in view of Ray et al. discloses the method of claim 1 as described above. Figure 1 as well as column 1, lines 43-49 of the Callaway, Jr. et al. reference further anticipates that the said wireless network is a Bluetooth network. In column 1, lines 43-49, it is stated that the piconet 15 of Figure 1 is a standard Bluetooth 1.0 system.

Regarding claims 8 and 10, the claimed limitation is a system for organizing a set of nodes into a minimum number of clusters of bounded size in a wireless network. This system comprises the using of packet bits during device discovery in order to separate the nodes into transmit-state and receive-state. This system also involves the defining of master and slave nodes and the defining of clusters containing these nodes. Inquiry messages and responses are exchanged between the master and slave nodes so that a connection can be established between these nodes.

The defining of master and slave nodes and the defining of clusters containing these nodes is anticipated by the piconet 15 in Figure 1 of the Callaway, Jr. et al. reference. This piconet has a master device 2 connected to several slave devices 1, 3, 4, 5, 6, 8, and 9, which constitutes a cluster. The exchanging of inquiry messages and inquiry responses between master and slave nodes for connection purposes is anticipated by Figures 3 and 5 of the Callaway, Jr. et al. reference. Figure 3 shows a master 2 that is sending an

inquiry message to slaves 1 and 12. Figure 5 shows slaves 1 and 12 sending inquiry responses to master 2. Callaway, Jr. et al. does not disclose the transmitting of packet bits during device discovery in order to separate the nodes into transmit-state and receive-state and convey node state. However, Ray et al. discloses an 8-bit opcode used within a message for either a request state or a reply state in Figure 4. This message format of Figure 4 is used for the automatic discovery of nodes associated with a subnet.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to use packet bits to set node state in the claimed system. A motivation for doing so would be to allow each node to be aware of other nodes that are associated with the same subnet as stated in column 1, lines 55-59 of the Ray et al. reference.

Regarding claim **14**, the claimed limitation is the system of claim **8** where the said wireless transmission system is a Bluetooth system. Callaway, Jr. et al. in view of Ray et al. discloses the system of claim **8** as described above. Figure 1 as well as column 1, lines 43-49 of the Callaway, Jr. et al. reference further anticipates that the said wireless network is a Bluetooth network. In column 1, lines 43-49, it is stated that the piconet 15 of Figure 1 is a standard Bluetooth 1:0 system.

Regarding claim **15**, the claimed limitation is the system of claim **14** where the slave nodes of a piconet carry on node discovery such that a scatternet for the Bluetooth system is formed. Callaway, Jr. et al. in view of Ray et al. discloses

the system of claim **14** as described above. Column 1, lines 55-60 of the Callaway, Jr. et al. reference further anticipates that a scatternet is formed by the connection of piconets. In column 1, lines 55-60, it is stated that several piconets can be established and linked together ad hoc, where each piconet is identified by a different frequency hopping sequence. The connection of these piconets constitutes a scatternet as in known in the art.

Regarding claims **19 and 21**, the claimed limitation is a computer program product for organizing a set of nodes into a minimum number of clusters of bounded size in a wireless network. This computer program product comprises the using of packet bits during device discovery in order to separate the nodes into transmit-state and receive-state. This computer program product also involves the defining of master and slave nodes and the defining of clusters containing these nodes. Inquiry messages and responses are exchanged between the master and slave nodes so that a connection can be established between these nodes.

The defining of master and slave nodes and the defining of clusters containing these nodes is anticipated by the piconet 15 in Figure 1 of the Callaway, Jr. et al. reference. This piconet has a master device 2 connected to several slave devices 1, 3, 4, 5, 6, 8, and 9, which constitutes a cluster. The exchanging of inquiry messages and inquiry responses between master and slave nodes for connection purposes is anticipated by Figures 3 and 5 of the Callaway, Jr. et al. reference. Figure 3 shows a master 2 that is sending an

inquiry message to slaves 1 and 12. Figure 5 shows slaves 1 and 12 sending inquiry responses to master 2. Callaway, Jr. et al. does not disclose the transmitting of packet bits during device discovery in order to separate the nodes into transmit-state and receive-state and convey node state. However, Ray et al. discloses an 8-bit opcode used within a message for either a request state or a reply state in Figure 4. This message format of Figure 4 is used for the automatic discovery of nodes associated with a subnet.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art given these references to use packet bits to set node state with the claimed computer program product. A motivation for doing so would be to allow each node to be aware of other nodes that are associated with the same subnet as stated in column 1, lines 55-59 of the Ray et al. reference.

Regarding claim **25**, the claimed limitation is the computer program product of claim **19** where the said wireless transmission system is a Bluetooth system. Callaway, Jr. et al. in view of Ray et al. discloses the computer program product of claim **19** as described above. Figure 1 as well as column 1, lines 43-49 of the Callaway, Jr. et al. reference further anticipates that the said wireless network is a Bluetooth network. In column 1, lines 43-49, it is stated that the piconet 15 of Figure 1 is a standard Bluetooth 1.0 system.

Allowable Subject Matter

10. Claims 2, 4-6, 9, 11-13, 20, and 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kumar (U.S. 6,640,268), Hill et al. (U.S. 6,381,467), Haartsen (U.S. 6,590,928), Haartsen et al. (U.S. 6,570,857), Haas (U.S. 6,304,556), and Perlman et al. (U.S. 5,574,860) are all references that contain material pertinent to this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J Moore, Jr. whose telephone number is (703) 305-8703. The examiner can normally be reached during the hours of 8:30am - 5:00pm (Monday-Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached at (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

mjm MM

Seema S. Rao
SEEMA S. RAO 11/26/03
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600